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SOV/11-59-5-1/14

AUTHOR: Semenenko, N.P.

TITLE: The Geochronology of the Pre-Cambrian Formations in the System of Absolute Chronology. (Geokhronologiya Dokembriya v absolyutnom letoischislenii.)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya Geologicheskaya, 1959, Nr 5, pp 3-15 (USSR)

ABSTRACT: The author compiled data on the absolute age of the pre-Cambrian formations in the USSR, obtained by the following institutions: Institut geokhimii i analiticheskoy khimii AN SSSR (the Institute of Geochemistry and Analytical Chemistry of the AS USSR); Radiyevyy institut AN SSSR (the Radium Institute of the AS USSR); the Institute of Geological Sciences of the AS UkrSSR; Laboratoriya geologii Dokembriya AN SSSR (the Laboratory of Pre-Cambrian Geology of the AS USSR); Vsesoyuznyy gеologicheskiy institut (the All-Union Geological In-

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The Geochronology of the Pre-Cambrian Formations in the System
of Absolute Chronology.

stitut) and Institut geologii AN USSR (the Insti-
tit of Geology of the AS UkrSSR). The following
scientist took part in this research: A.P. Vino-
gradov, A.I. Tugarinov, I.V. Konlev, N.P. Sereb-
enko, Ye.S. Burksar, M.M. Ivantishin, A.A. Polkanov,
E.K. Gerling, K.C. Kratts, L.N. Kharitonov, N.I.
Polevaya, L.N. Ovchinnikov, N.I. Garris, D.A.
Velikoslavinskiy, S.V. Obruchev, M.M. Odintsov,
N.I. Florensov, P.M. Khrenov and Yu.K. Dzevanov-
skiy. All known Pre-Cambrian formations of the
USSR are divided into groups according to their
age: the Pre-Cambrian formations of the Ukrainian
shield form 7 age groups from 900 million to 2,600
million years old; the Baltic shield is composed
of 7 age groups from 1,010 million to 3,480 million
years; the Russian Plateau and Urals are composed
of 5 age groups from 680 million to 1,740 million

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years old; the age of older formations underlying the Kursk iron series is not yet determined; Siberia has 4 age groups (table 1) from 500 to 1,900 million year old. Regional composition of each age group is given in detail. The age of similar formations of Canada and Africa are also given. According to the author, the comparison of available data on the age of all known Pre-Cambrian formations shows that there are 10 cycles of mineralization linked with 10 epochs of Pre-Cambrian folding. These epochs and cycles represent the history of the cialic Earth crust for 500 million to 3,500 million years. Each of the mineralization cycles is commensurate with folding epochs of Post-Cambrian time: Caledonian, Herzynian and Alpine, occurring during the last 500 million years. Summing up, the following 5 great planetary megacycles represent the history

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of the Earth (in millions of years): 1) fifth Post-Cambrian megacycle with 3 folding epochs - from 500 to 600; 2) fourth Pre-Cambrian megacycle with 2 folding epochs - from 500 to 1150; 3) third Pre-Cambrian megacycle with 3 folding epochs - from 1200 to 1850; 4) second Pre-Cambrian megacycle with 3 folding epochs - from 1900 to 2650; 5) first Pre-Cambrian megacycle with 2(?) folding epochs - from 2650 to 3500. The duration of folding epochs and mineralization cycles is about 150 million to 400 million years (table 3). The whole Pre-Cambrian system contains huge quantities of metallic deposits. Among other minerals 75% of the gold and 50% of the iron and manganese mined are extracted from these formations. There are 3 tables and 32 references, 18 of which are Soviet, 4 American, 5 French, 1 German, 1 Swedish, 1 Finnish, 1 Mexi-

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The Geochronology of the Pre-Cambrian Formations in the System
of Absolute Chronology.

can and 1 South African.

ASSOCIATION: Institut Geologicheskikh nauk AN USSR (the Institute of Geological Sciences of the AS UkrSSR),
Kiyev.

SUBMITTED: March 31 1958

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SEMENENKO, N.P. [Semenenko, M.P.]

Absolute geochronology and main stages in geological history.
Geol. zhur. 19 no.5:11-16 '59. (MIRA 13:2)
(Geological time)

SEMENENKO, N.P. (SSSR)

Age of the metamorphism of rocks in the Rakhov massif. Mat.
Karp.-Balk.assots. no.1:188-189 '60. (MIRA 14:12)
(Carpathian Mountains--Rocks, Crystalline and metamorphic)
(Geological time)

SEMENENKO, N.P., otv.red.; KORZHINSKIY, D.S., red.; AFANAS'YEV, G.D.,
red.; ZAVIRYUKHINA, V.N., red.izd-va; MATVEYCHUK, A.A.,
tekhn.red.

[Granite-gneiss] Granito-gneisy. Kiev, Izd-vo Akad.nauk USSR,
1960. 174 p. (Doklady sovetskikh geologov. Problema 14).

(MIRA 13:10)

1. International Geological Congress. 21st, Copenhagen, 1960.
2. Institut geologicheskikh nauk AN USSR (for Semenenko). 3. Insti-
tut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i
geokhimii AN SSSR (for Korzhinskiy).

(Granite) (Gneiss)

TURK, Yu.Yu.; SHNYUKOV, Ye.F.; LEBEDEV, Yu.S.; KIRICHENKO, O.N.; SEMELENKO,
N.P., akademik, otv.red.; ISUPOVA, N.I., tekhn.red.

[Mineralogy of iron ore formation in the Kerch Basin] Mineralogiiia
zhelezorudnoi formatsii Kerchenskogo basseina. Simferopol', Krym-
izdat, 1960. 449 p. (MIRA 13:12)

1. AN USSR (for Semenenko).
(Azov Sea region--Iron ores)

ABDULLAYEV, Kh.M., glavnnyy red.; ANTROPOV, P.Ya., red.; AZIZBEKOV, Sh.A., akademik, red.; AFANAS'YEV, G.D., red.; BATALOV, A.B., doktor geol.-mineral.nauk, red.; BELYAYEVSKIY, N.A., doktor geol.-mineral.nauk, red.; KOPTEV-DVORNIKOV, V.S., doktor geol.-mineral.nauk; red.; KUZNETSCOV, Yu.A., red.; MARFUNIN, A.S., kand.geol.-mineral.nauk, red.; NIKOLAEV, V.A., red.; POLOVINKINA, Yu.I., doktor geol.-mineral.nauk, red.; RUB. M.G., doktor geol.-mineral.nauk, red.; SATPAYEV, K.I., akademik, red.; SEMENENKO, N.P., akademik, red.; KHANRABAYEV, I.Kh., doktor geol.-mineral.nauk, red.; PANNOVA, A.I., red.izd-va; KITAYENKO, L.G., red.izd-va; KALOSHINA, T.V., red.izd-va; IVANOVA, A.G., tekhn.red.

[Magmatic activity and its role in the formation of minerals] Magmatizm i sviaz' s nim poleznykh iskopаемых; trudy. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1960. 782 p.

(Continued on next card) (MIRA 13:11)

ABDULLAYEV, Kh.M.--- (continued) Card 2.

1. Vsesoyuznoye petrograficheskoye soveshchaniye. 2d, Tashkent.
2. Prezident Akademii nauk Uzbekskoy SSR (for Abdullayev). 3. Chleny-korrespondenty AN SSSR (for Abdullayev, Afanas'yev, Kuznetsov, Niko-layev). 4. AN Azerbaydzhanskoy SSR (for Azizbekov). 5. AN SSSR (for Satpayev). 6. AN Ukrainskoy SSR (for Semenenko). 7. Institut geolo-gii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii Akademii nauk SSSR (for Afanas'yev, Marfunin, Rub). 8. Inst.geologii Akademii nauk Uzbekskoy SSR (for Batalov). 9. Laboratoriya geologii dokembriya Akademii nauk SSSR (for Nikolayev). 10. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut (for Polovinkina).
11. Institut geologii Akademii nauk Ukrainskoy SSR (for Semenenko).
(Mineralogy)

SEMENENKO, N.P. [Semenenko, M.P.]

Determination of the age of Sweden's Pre-Cambrian schists by the
potassium-argon method. Geol. zhur. 20 no.2:51-53 '60.
(MIRA 14:5)
(Sweden-Schists)

YURK, Yuriy Yur'yevich; SHNYUKOV, Yevgeniy Fedorovich; SEMENENKO, N.P.,
akademik, otv. red.; CHEKHOVICH, N.Ya., red.; DAKHO, Yu.M.,
tekhn. red.

[Iron oxides in the Ukrainian Crystalline Shield] Okisly zhe-
leza ukrainskogo kristallicheskogo shchita. Kiev, Izd-vo Akad.
nauk USSR, 1961. 107 p. (MIRA 15:1)

1. Akademiya nauk USSR (for Semenenko).
(Dnieper Valley--Iron oxides)

SEMENENKO, N.P.

Determining the age of Pre-Cambrian metamorphic schists in
Switzerland by the potassium-argon method. Biul.Kom.po opr.
abs.vozr.geol.form. no.4:56-58 '61. (MIRA 15:1)
(Switzerland--Schists)
(Geological time)

SEMENENKO, N.P. [Semenenko, M.P.]; KOTLOVSKAYA, F.I. [Kotlovs'ka, F.I.];
DEMIDENKO, S.G. [Demydenko, S.H.]

Determination of the age of metamorphic achists of the Baikal-Sayan mountainous region in the Academy of Sciences of the Ukrainian S.S.R. Geol. zhur. 21 no.6:56-57 '61. (MIRA 15:2)
(Sayan Mountains—Schists)
(Geological time—Schists)

SEMENENKO, N.P.

Pre-Cambrian metallogeny. Sov.geol. 5 no.2:50-60 F '62.(MIRA 15:2)

1. Akademiya nauk USSR.
(Ore deposits)

SEMENENKO, N.P.

Impact of science and technology of economic development of the
Ukrainian Soviet Socialist Republic."

Report submitted to the Conf. on the Application of Science and Technology
for the Benefit of the Less Developed Areas.
Geneva, Switzerland 4-20 February 1963

SEMENENKO, N.P. [Semenenko, M.P.]

Fifth Congress of the Carpatho-Balkan Geological Association
held in the Rumanian People's Republic, September 4-19, 1961.
Geol.zhur. 22 no.4:109-112 '62. (MIRA 15:9)

1. Institut geologicheskikh nauk AN UkrSSR.
(Carpathian Mountains--Geology--Congresses)
(Balkan Mountains--Geology--Congresses)

N.P. SEMENENKO (USSR)

"Absolute geochronology and the history of formation of the Pre-Cambrian folded zones on the East-European platform."

Report presented at the Conference on Chemistry of the Earth's Crust,
Moscow, 14-19 Mar 63.

SEMENENKO, N.P., akademik, otv. red.; SUBBOTIN, S.I., akademik, red.;
TKACHUK, L.G., doktor geol.-miner. nauk, zam. otv. red.;
LAZARENKO, Ye.K., red.; BELEVSEV, Ya.N., red.p POPOV, V.S.,
red.; SOLLOGUB, V.B., kand. geol.-miner. nauk, red.;
ZAVIRYUKHINA, V.N., red.; MEL'NIK, A.F., red.; DAKHNO, Yu.B.,
tekhn. red.

[Materials of the Fifth Conference of the Carpatho-Balkan
Geological Association] Materialy V s"ezda Karpato-Balkanskoi
geologicheskoi assotsiatsii. Kiev, Izd-vo Akad. nauk URSR,
1962. 309 p. (MIRA 16:4)

1. Karpato-Balkanskaya geologicheskaya assotsiatsiya. 5. s"ezd.
2. Akademiya nauk Ukr.SSR (for Semenenko, Subbotin).
(Carpathian Mountains--Geology)
(Balkan Mountains--Geology)

SEMENENKO, N.P.

[Structural geology map of the Ukrainian Crystalline Shield
on a 1:1,000,000 scale] Geologo-tektonicheskaiia karta Uk-
rainskogo kristallicheskogo shchita. Masshtab 1:1000000.
Kiev, Izd-vo AN USSR, 1964. 14 p. (MIRA 17:6)

BELYAYEVSKIY, N.A., red.; ALI-ZADE, A.A., red.; ALIYEV, M.M., red.;
BAKIROV, A.A., red.; BELOUSOV, V.V., red.; BEUS, A.A., red.;
BOGDANOV, A.A., red.; BORISOV, A.A., red.; BRENNER, M.M.,
red.; DYJKOV, A.I., red.; YERSHOV, A.D., red.; ZARIDZE, G.M.,
red.; KALUGIN, A.S., red.; KOSOV, B.M., red.; KOPTEV-
red.; DVORNIKOV, V.S., red.; KOTLYAR, V.N., red.; LUGOV, S.F., red.;
MAGAK'YAN, I.G., red.; MARINOV, N.A., red.; MARKOVSKIY, A.P.,
red.; MALINOVSKIY, F.M., red.; PUSTOVALOV, L.V., red.; SATPAYEV,
K.I., red.; SEMENENKO, N.P., red.; TYZHNOV, A.V., red.;
KHRUSHCHOV, N.A., red.; SHCHEGOLEV, D.I., red.; YARMOLYUK, V.A.,
red.

[Materials on regional tectonics of the U.S.S.R.] Materialy po
regional'noi tektonike SSSR. Moskva, Izd-vo "Nedra," 1964. 193 p.
(MIRA 17:4)

l. Russia (1923- U.S.S.R.) Gosudarstvennyy geologicheskiy ko-
mitet.

SEMENENKO, Nikolay Panteleymonovich; SIROSHAN, R.I., starshiy
nauchnyy sotrudnik, otd. red.; ZAVIRYUKHINA, V.N., red.

[Metamorphism of mobile belts:] Metamorfizm podvizhnykh zon.
Kiev, 1963. 256 p. (Akademicheskie nauki URSR, Kiev. Instytut
geologicheskikh nauk. Trudy. Seriya petrografii, mineralogii i
geokhimii, no. 18) (MIRA 17:5)

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SEMEHENKO, N.P.

Sixth Congress of the Carpatho-Balkan Association. Sov. geol. 7
no. 5:151-155 May '64 (MIRA 18:2)

APPROVED FOR RELEASE: 03/14/2001

CIA-RDP86-00513R001547810008-7"

AFANAS'YEV, G.D.; SHCHERBAKOV, D.I.; SEMENENKO, N.P.; SOBOTOVICH, E.V.;
PEKARSKAYA, T.B.

Iosif Evseevich Starik, 1902-1964; obituary. Izv. AN SSSR. Ser.
geol. 29 no.10:122-124 0 '64. (MIRA 17:11)

SEMENENKO, N.P.

[Tectonic map of the Ukrainian Crystalline Shield;
1:1,000,000] Geologo-tektonicheskia karta Ukrain-
skogo kristallicheskogo shchita; 1:1000 000. Kiev,
Izd-vo AN USSR, 1964. 13 p. (MIRA 17:11)

SEMENENKO, N.P.; SUBOTIN, S.I.; SOLIOGUB, V.B.; IVANTISHIN, M.N.; CHEKINOV,
A.V.; IADIYEVA, V.P.

Structure of the abyssal zones of the earth's crust in the
Ukrainian Crystalline Shield. Sov. geol. 7 no.11:48-60 N '64.
(MTRA 18;2)

1. Institut geofiziki AN UkrSSR.

BORDUNOV, Ivan Nikiforovich; SEMENENKO, N.P., akademik, otv.red.

[Geology of the Kremenchug iron ore region] Geologija Kremenchugskogo zhelezorudnogo raiona. Kiev, Naukova dumka, 1964. 216 p.
(Akademija nauk URSR. Instytut geologichnykh nauk. Trudy. Serija geologii mestorozhdenij poleznykh iskopаемых, no.14) (MIRA 18:3)

1. AN UkrSSR (for Semenenko).

SEMENENKO, N.P., akademik, otv. red.; TKACHUK, L.G., doktor geol.-miner. nauk, zam. otv. red.; VYALOV, O.S., red.; PORFIR'YEV, V.B., red.; SUBBOTIN, S.I., red.; LAZARENKO, Ye.K., red.; BELEVTSOV, Ia.N., red.; POPOV, V.S., red.; SOLLOGUB, V.B., doktor geol.-miner. nauk, red.; CHEKHOVICH, N.Ya., red.; BYCHKOVA, R.I., red.

[Materials of the Sixth Congress of the Carpatho-Balkan Geological Association; reports of the Soviet geologists] Materialy VI s"ezda Karpato-Balkanskoi geologicheskoi assotsiatsii; doklady sovetskikh geologov. Kiev, Naukova dumka, 1965. 461 p.

1. Karpato-Balkanskaya geologicheskaya assotsiatsiya. 6.s"ezd.
2. AN Ukr.SSR (for Semenenko). 3. Chlen-korrespondent AN Ukr.SSR
(for Lazarenko, Belevtsov, Popov).

SEmenenko, N.T.

Clarification of brandy with gelatin, fish glue and bentonite.
Trudy VNIIVIV "Magarach" 13;143-148 '64. (MIRA 17;12)

KRASIKOVA, V.I., kand. biol. nauk; SEMENENKO, N.Ya.; LUDANOVA, N.V.,
mladshiy nauchnyy astrudnik; BORISOVA, I.F., starshiy tekhnik;
laborant

Use of sorbic acid to prevent the molding of half-smoked
sausage. Trudy VNIIMP no.16:240-244, '64. (MIRA 18:11)

i. Starshiy inzhener Vsesoyuznogo nauchno-issledovatel'skogo
instituta myasnoy promyshlennosti (for Semenenko).

SEMENENKO, P.; KUPRIN, P.

Laboratory work in a trade school, Prof.-tekhn.oibr. 11 no.9:16-
19 D '54. (MLRA 8:1)

1. Direktor remeslenного uchilishcha No.1 (Dnepropetrovskaya
obl'st') (for Semenenko); 2. Zamestitel' direktora po uchebno-
proizvodstvennoy chasti (for Kuprin).
(Technical education)

SEMEENENKO,P.; KUPRIN,P.

Future innovators. Prof.-tekh.oibr.12 no.9:14-15 S'55. (MIRA 8:11)

1. Direktor remeslennogo uchilishcha no.1, Dnepropetrovskaya oblast'
(for Semenenko). 2. Zamestitel' direktora po uchebno-proizvodstvennoy
chasti (for Kupria).
(Dnepropetrovsk Province--Technical education)

VOLKOVETS, N., slesar'-sborschik (st. Berngardovka, Leningradskaya oblast'); PAVASAR, B., plotnik (st. Simskaya, Chelyabinskaya oblast'); ADIBEKYAN, O., inzh. (Yerevan); ROGOZIN, T. (Odessa); FRAUDKIN, F., inzhener-mekhanik (Moskva); SEMENENKO, P., mekanik; RADCHENKO, P., inzh.

Readers' letter exchange. Tekh.mol. 30 no.10:22-23 '62.
(MIRA 15:12)

1. Kolkhoz imeni Tel'mana, Turkmeneskaya SSR (for Semenenko).
(Technological innovations)

SEMENENKO, P.; GUDOV, V.; SUKHMAN, L.; FADEYEV, I.; KOCHO, V., doktor
tekhn.nauk

"Steel pourer" by D.A.Smoliarenko. Reviewed by P.Semenenko
and others. Metallurg 8 no.1+39-40 Ja '63. (MIRA 16:1.)
(Steel ingots)
(Smoliarenko, D.A.)

SEMENENKO P.A.

YEGOROV, O.G.; SEMENENKO, P.A., inzh., red.; KLOPOVA, T.B., tekhn.red.

[Devices for mechanical stamping for identification of parts on
a horizontal milling machine; practices of the Stalin Metalworking
Plant in Leningrad] Prisposobleniya dlia mekhanicheskogo kleimeniya
detalei na gorizontaльno-frezernom stanke; opyt IMZ imeni Stalina.
Leningrad, 1955. 6 p. (Leningradskii dom nauchno-tehnicheskoi
propagandy. Informatsionno-tehnicheskii listok, no.113(801))
(MIRA 10:12)

(Metalworking machinery)

SEMENENKO, P.A.
GUTKIN, S.T.; SEMENENKO, P.A., inzh., red.; GVIERTS, V.L., tekhn.red.

[Design of attachments permitting repeated setting up of lathes
for work on a series of items] Konstruktsii prisposoblenii,
dopuskaiushchikh perenaladku na gruppu detalei. Leningrad, 1955.
7 p. (Leningradskii dom nauchno-tehnicheskoi propagandy.
Informatsionno-tehnicheskii listok, no.96(784)) (MIRA 10:12)
(Lathes--Attachments)

DODZIN, L.I., inzh.; SEMENENKO, P.A., inzh., red.; GVIERTS, V.L., tekhn.red.

[Pneumatic device for milling sockets for plates and rear edge cutter holders] Pnevmaticheskoe prispособление для фрезерования гнезд под пластинку и задних граней державок резцов. Leningrad, 1955. 10 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Informatsionno-tekhnicheskii listok, no.69(75?)) (MIRA 10:12)
(Cutting tools)

SEMENENKO, P.A.

LIVSHITS, Pavel Yuryevich; FOMIN, Kirill Aleksandrovich; SEMENENKO, P.A.,
red., inzh.; FREGEH, D.P., tekhn.red.

[Knurling convex numerical symbols on steel disks; the practice
of the "Svoboda" Plant in Leningrad] Nakatyvanie vypuklykh
tsifrovых znakov na stal'nykh diskakh; opyt Leningradskogo
zavoda "Svoboda." Leningrad, 1956. 10 p. (Leningradskii dom
nauchno-tekhnicheskoi propagandy. Informatsionno-tekhnicheskii
listok, no.42. Mekhanicheskaya obrabotka metallov) (MIRA 10:12)
(Marking devices)

KOKUSHKIN, Leonid Pavlovich, inzh.; SEMENENKO, P.A., inzh., red.;
FREGER, D.P., tekhn.red.

[Pneumatic drive with nonrotating cylinder. Automatic brakes.
Safety pneumatic relay.) Pnevmaticheskii privod s nevraschiushchimisya
tsilindrom. Tormoz avtomaticheskogo deistviia. Predokhranitel'noe
pnevmaticheskoe rele. Leningrad, 1956. 14 p. (Leningradskii dom
nauchno-tekhnicheskoi propagandy. Informatsionno-tekhnicheskii
listok, no.32. Mekhanicheskaiia obrabotka metallov) (MIRA 10:12)
(Machine tools)

ZVYAGIL'SKIY, Leonid Yakovlevich; YAKOVLEV, Radomir Gerontevich;
SEMENENKO, P.A., inzh., red.; KUBNEVA, M.M., tekhn.red.

[Pneumatic chucks for lathes; colletless pneumatic chucks for
turret lathes; colletless chucks with automatic feed for
turret lathes] Pnevmaticheskie patrony k tokarnym stankam;
Bestsangovyj pnevmaticheskii patron k revol'vernym stankam;
Bestsangovyj patron s avtomaticheskoi podachei materiala k
revol'vernym stankam. Leningrad, 1959. 14 p. (Leningradskii
dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opyтом.
Seria: Mekhanicheskaya obrabotka metallov, vyp.9).

(MIRA 13:3)

(Lathes)

RAYKHENSHTEYN, Isaak Tsfan'yevich; SEMENENKO, P.A., inzh., red.;
GVIRTS, V.L., tekhn. red.

[Semiautomatic unit for cutting pipes] Poluavtomaticheskoe
prisposoblenie dlia razrezki trub. Leningrad, 1960. 11 p.
(Leningradskii dom nauchno-tehnicheskoi propagandy. Obmen
peredovym opyтом no.23. Seriya Obrabotka metallov rezaniem,
no.4) (MIRA 14:5)

(Pipe cutting)

KARPOV, Sergey Grigor'yevich; NEVOLIN, Pavel Pavlovich; SEMENENKO,
P.A., red.; FOMICHEV, A.G., red.izd.-va; BOL'SHAKOV, V.A.,
tekhn. red.

[Universal carriage for machining external and internal
spherical surfaces on lathes and shapers] Universal'nyi sup-
port dlja obrabotki naruzhnykh i vnutrennikh sfericeskikh
poverkhnostei na tokarnom i strogal'nom stankakh. Leningrad,
1961. 10 p. (Leningradskii dom nauchno-tehnicheskoi propa-
gandy. Obmen peredovym opyтом. Seriya: Mekhanicheskaya ob-
rabotka metallov, no.19) (MIRA 15:8)

(Lathes)

(Shapers)

YELISEYEV, Yevgeniy Nikolayevich; SEMENENKO, P.A., inzh., red.; SHILLING,
V.A., red. izd-va; GVIPTS, V.L., tekhn. red.

[Automatic attachment for machining stepped rolls on the I462 lathe]
Avtomatischeskoe ustroistvo dlia obtochki stupenchatykh valikov na
stanke I462. Leningrad, 1961. 17 p. (Leningradskii Dom nauchno-
tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Mekhaniche-
skaia obrabotka metallov, no.7) (MIRA 14:7)
(Lathes—Attachments)

DRUZHININ, Viktor Aleksandrovich; SEMENENKO, P.A., inzh., red.; SHILLING, V.A., red. izd-va; GVIERTS, V.L., tekhn. red.

[Hydraulic power units and devices with hydraulic clamps] Silovye gidroagregaty i prispособleniya s gidravlicheskimi zashimami. Leningrad, 1961. 18 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opyтом. Seriia: Mekhanicheskaya obrabotka metallov, no.4) (MIRA 14:7)

(Oil hydraulic machinery)

SHAMANIN, Aleksandr Vasil'yevich; SEMENENKO, P.A., inzh., red.; SHILLING,
V.A., red. izd-va; GVIERTS, V.L., tekhn. red.

[Special mandrels for lathes and circular grinding machines; verbatim
report of lectures] Spetsial'nye opravki dlja tokarnykh i kruglo-
shlifoval'nykh stankov; stenogramma lektsii. Leningrad, 1961. 21. p.
(MIRA 14:7)

(Machine tools)

TROITSKAYA, Diana Nikolayevna; SEMENENKO, P.A., inzh., red.; SHILLING, V.I.,
red., izd-va; BELOGUROVA, I.A., tekhn.red.

[Cooling and lubricating metal-cutting tools with atomized liquids]
Okhlarzhdenie i smazka rezhushchikh instrumentov raspylenymi
zhidkostiami. Leningrad, 1961. 27 p. (Leningradskii Dom nauchno-
tekhnicheskoi propagandy. Obmen peredovym opytom. Seria: mekhanika-
cheskaiia obrabotka metallov, no.20) (MIRA 14:12)
(Metalworking lubricants)

GEFNER, Vitaliy Mikhaylovich; VAGIN, Andrey Grigor'yevich; SEMENENKO, P.A., inzh., red.; FREGER, D.P., red. izd-va; GVIRTS, V.L., tekhn. red.

[Pneumatic pulse machine, its parts and their manufacture] Pnev-maticheskaia impul'snaia mashina, ee detali i osobennosti ikh iz-gotovleniya. Leningrad, 1961. 19 p. (Leningradskii Dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opyтом. Seriia: Me-khanicheskaiia obrabotka metallov, no.16). (MIRA 14:12) (Pneumatic machinery)

SKORNYAKOV, Sergey Yakovlevich; SEMENENKO, P.A., inzh., red.;
SHILLING, V.A., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Multiple milling attachments with hydroplastic materials
operated by oleo-pneumatic boosters] Mnogomestnye frezernye
prisposobleniya s gidroplastom, deistvuiushchie ot pnevmogidro-
usilitelia. Leningrad, 1961. 9 p. (Leningradskii Dom nauchno-
tekhnicheskoi propagandy. Obmen peredovym opyтом. Seriia: Me-
khanicheskaya obrabotka metallov, no.21) (MIRA 14:12)
(Milling machines--Attachments)

ANSEROV, Mikhail Alekseyevich, dots., kand. tekhn. nauk; SEMENENKO,
P.A., inzh., red.; FOMICHEV, A.G., red.izd-va; BELOGUROVA,
I.A., tekhn. red.

[Mechanization and automation of machine-tool attachments;
survey] Mekhanizatsiia i avtomatizatsiia stanochnykh prispособ-
lenii; obzor. Leningrad, 1961. 101 p. (MIRA 15:5)
(Machine tools—Attachments) (Automation)

PANTELEYEV, Arkadiy Aleksandrovich; SEMENENKO, P.A., inzh., red.;
VASIL'YEV, Yu.A., red. izd-va; GVIPTS, V.L., tekhn. red.

[Automatic control of the lapping of the central hole in
plunger liners]Avtomatizatsiia dovodki tsentral'nogo ot-
verstiia v gil'zakh plunzhera. Leningrad, 1962. 20 p.
(MIRA 15:8)

(Grinding and polishing) (Automatic control)

ZOLOTRNIKOV, Ivan Mikhaylovich; SYSOYEV, Pavel Vasil'yevich;
SEMENENKO, P.A., inzh., red.; SHILLING, V.A., red.izd-va;
BELOGUROVA, I.A., tekhn. red.

[Machining bodies of revolution by the face milling method]
Obrabotka poverkhnostei tel vrashcheniya metodom tortsovogo
frezerovaniia. Leningrad, 1962. 21 p. (Leningradskii dom
nauchno-tehnicheskoi propagandy. Obmen peredovym opyтом.
Seriia: Mekhanicheskaya obrabotka metallov, no.11)
(MIRA 15:8)

(Metal cutting) (Milling machines)

GAMUS, Moisey Zalmanovich; VYDRIN, Andrey Ivanovich; SEMENENKO, P.A.,
inzh., red.; SHILLING, V.A., red. izd-va; GVIITS, V.L., tekhn.
red.

[Workshop rationalization and comprehensive plans] TSekhovaia
ratsionalizatsiia i kompleksnye plany. Leningrad, 1962. 24 p.
(Leningradskii dom nauchno-tehnicheskoi propagandy. Obmen me-
tallov, no.14) (MIRA 15:8)
(Leningrad--Machine tools)

ZLOTNITSKIY, Boris Vladimirovich; SEMENENKO, P.A., red.; VASIL'YEV,
Yu.A., red. izd-va; BOL'SHAKOV, V.A., tekhn. red.

[Sectional annular drill] Sostavnoe kol'tsevoe sverlo. Lenin-
grad, 1962. 30 p. (Leningradskii dom nauchno-tekhnicheskoi
propagandy. Obmen peredovym opyтом. Seriya: Mekhanicheskaya
obrabotka metallov, no.2) (MIRA 15:8)
(Twist drills)

YELFIMOV, Vladimir Vladimirovich; SEMENENKO, P.A., inzh., red.;
FREGER, D.P., red.izd-va; BELOGURCVA, I.A., tekhn. red.

[Drilling deep holes in EI-868 (VZh-98) and EI-894 nickel-base heat resistant alloys] Sverlenie glubokikh otverstii v zharoprovodnykh splavakh na nikalevoi osnove marok EI-868 (VZh-98) i EI-894. Leningrad, 1962. 15 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opyтом. Seriya: Mekhanicheskaya obrabotka materialov, no.5) (MIRA 16:3)

(Drilling and boring)
(Heat-resistant alloys)

SINNEYDER, Yury Grigoryevich, kand. tekhn. nauk; SEMENENKO, P.A.,
red.

[Selecting a deformation pattern, a method, tool design and
the conditions for the finishing operations in metal work-
ing by pressure] Vybor skhemy, metoda, konstruktsii instru-
menta i rezhima chistovoi obrabotki davleniem, Leningrad:
(MIRA) 1965. 12 p.

KUZMIN, Fedor Kuz'mich; YAKOVLEV, Grigoriy Ivanovich; SEMENENKO, P.I.,
red.; FOMICHÉV, A.G., red. izd-va; BOL'SHAKOV, V.A., tekhn.
red.

[Progressive method for cutting trapezoid screw thread] Prog-
ressivnyi metod narezaniia trapetseidal'noi rezby. Leningrad,
1962. 11 p. (Leningradskii Dom nauchno-tekhnicheskoi propa-
gandy. Opyt novatorov. Seriia: Mekhanicheskaya obrabotka metal-
lov, no.4) (MIRA 15:3)

(Screw cutting)

SHEVTSOV, D.S.; ZALEVSKAYA, L.A.; GLAGOLEV, G.M.; VOLKOV, V.P.; BABININ, A.U.;
SEMENENKO, P.K.; RENSKIY, N.S.

Calcining limestone in small lumps. Sakh. prom. 31 no. 4:20-24 Ap '57.
(MIRA 10:6)

1. TSentral'nyy nauchno-issledovatel'skiy institut sakharnoy promysh-
lenosti (for Shevtsov, Zalevskaya, Glagolev, and Volkov). 2. Bobro-
vitskiy sakharnyy zavod (for Babinin, Semenenko, and Renskiy).
(Limestone) (Limekilns)

KAPELYUSHNYY, D.I.: SEmenenko, P.K.

Hydrostatic method of measuring feed molasses in molasses storage tanks. Sakh.prom. 32 no.10:48-50 O '58. (MIRA 11:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut sakharnoy promyshlennosti (for Kapelyushnyy). 2. Bobrovitskiy sakharnyy zavod (for Semenenko).

(Molasses) (Gauging)

Sem-NENKO, P.P.

5(5)

AUTHORS:

TITLE:

SARYANOV, V. I., KNORRE, K. G.
907/7-59-6-14/7

ABSTRACT:
The VIII Session of the Commission for the Determination of the Absolute Age of Geological Formations (at the Otdeleniye Geologicheskikh nauk Akademii Nauk SSSR, Department of Geological Sciences AS USSR), May 18 - 22, 1959, Moscow.

PERIODICAL:
Geobitsaia, 1959, Nr. 6, pp. 567-568 (USSR).
The 8th Regular Session of the Commission for the Determination of the Absolute Age of Geological Formations was held in Moscow on May 18 to May 22, 1959 at the Institut Gidrogeologii i analiticheskoy khimii im. V. I. Vernadskogo (Institute of Geochemistry and Analytical Chemistry) Laveli V. I. Vernadskiy). A series of summarizing reports was held on age determinations in the course of the meetings, which are to be presented to the 11th International Geological Congress. The following reports are concerned: V. K. Gerling: Problems of the absolute age of the Proterozoic of the Pacific Shield; A. V. Polikarov, Yu. D. Savchenko: The absolute age of the Ukrainian crystalline terrane; T. T. Tsvetinskaya: The absolute age of the Ukrainian crystalline terrane; V. V. Kostylev, M. M. Ivanishchikov: The absolute age of the Paleozoic of the Urals and the Central Ural; A. Ya. Yefremov: The absolute age of the rocks of the Central-Asian Tyan Shan, and the application of the argon method for metamorphic and sedimentary rocks; G. D. Afanasyev: Results of the geochronological research of the geological formations of the Caucasus; L. F. Orshinov and M. A. Gavrilova (Chairwoman): Terrene of the Urals and the Pril'vinskaya: Absolute age determination of the sedimentary and volcanic formations; L. F. Krashen and N. I. Polova: Absolute age of the magmatic rocks of the (Soviet) Far East.

Card 1/4

V. I. Polova: Absolute age of the granite intrusions of Kazakhstan. The research work of a number of laboratories, RIM, GRCKhI, Laged, etc. etc aroused great attention, especially a report of P. S. Gerling, Yu. A. Shukolyukov on the joint contributions of the isotopic Ar-40 in uranium minerals as well as the comprehensive research work carried out by the Voronezh Polytechnicheskii Institute, Nauk Oruzheinyi DGA (Laboratory of Age Determinations of the Academy of Sciences of the USSR) under the application of isotopic dilution and flame photometry. The determination of the age of sedimentary rocks was discussed. An attempt was made in his report how well radiogenic argon is conserved in weathered products of rocks such as boulders, sand, and tundra clay, and muds.

A. I. Tsvetinskaya and S. I. Zitov were the first to attempt to determine the absolute age of sedimentary carbonate according to isotopic composition of lead.

Card 2/4

Y. V. Polovat: Absolute age of the granite of the Central-Ural, etc. The absolute age of the rocks of the Central-Ural, V. V. Chirova, Yu. I. Zaytsev: The age of the Proterozoic rocks of the crystalline fundaments of the Russian Platform; T. V. Starik, A. Ya. Krylov, M. G. Davich, T. V. Dillina: The absolute age of the rocks of the eastern part of the Antiklinal continues. A. Ya. Yefremov: The absolute age of the rocks of the Central-Asian Tyan Shan, and the application of the argon method for metamorphic and sedimentary rocks; G. D. Afanasyev: Results of the geochronological research of the geological formations of the Caucasus; L. F. Orshinov and M. A. Gavrilova (Chairwoman): Terrene of the Urals and the Pril'vinskaya: Absolute age determination of the sedimentary and volcanic formations; L. F. Krashen and N. I. Polova: Absolute age of the magmatic rocks of the (Soviet) Far East.

Card 3/4

L. F. Krashen and N. I. Polova: Absolute age of the magmatic

rocks of the (Soviet) Far East.

Card 4/4

The research work of a number of laboratories, RIM, GRCKhI, Laged, etc. etc aroused great attention, especially a report of P. S. Gerling, Yu. A. Shukolyukov on the joint contributions of the isotopic Ar-40 in uranium minerals as well as the comprehensive research work carried out by the Voronezh Polytechnicheskii Institute, Nauk Oruzheinyi DGA (Laboratory of Age Determinations of the Academy of Sciences of the USSR) under the application of isotopic dilution and flame photometry. The determination of the age of sedimentary rocks was discussed. An attempt was made in his report how well radiogenic argon is conserved in weathered products of rocks such as boulders, sand, and tundra clay, and muds. A. I. Tsvetinskaya and S. I. Zitov were the first to attempt to determine the absolute age of sedimentary carbonate according to isotopic composition of lead.

Card 1/4

SEME NENKO, P.P.

130-8-9/20

AUTHOR: Sokolov, M.S., Candidate of Technical Sciences and
Semenenko, P.P., Engineer.

TITLE: New Method of Lining the Bottoms of Basic Open-hearth
Furnaces (Novyy metod kladki podin osnovnykh martenovskikh
pechey)

PERIODICAL: Metallurg, 1957, No.8, pp. 23 - 26 (USSR)

ABSTRACT: After a brief account of the properties of melted-on and
brick parts of the lining of basic open-hearth furnaces and of
some attempts at improving brick joints the authors describe
work at the imeni Serov (imeni Serova) Works where a "welding"
composition was used. This consisted of magnesite with a
proportion of mill scale which depended on the location in the
furnace bottom of the joint to be made. They mention that a
bottom laid in this way lasted for 7 years and 2 months melting
a wide variety of steels. Later (1955) tests at the same works
confirmed the advantages of this technique, which reduced metal
penetration and gave an economy of about 0.2-0.3 kg of magnesite
per ton of steel melted. A diagram of temperature distribution
in the bottom of this furnace (found from electrical analogues)
is shown (Fig.4). The authors go on to give extracts from an
American article describing a similar type of bottom
Card1/2 construction and suggest that on the basis of experience at

Semenenko et al. 133-6-7/33

133-6-7/33

AUTHORS: Semenenko, P.P., Golovanov, M.M. and Fadeev, I.G.

TITLE: The development of the process of smelting ball bearing steel in acid open-hearth furnaces. (Usovershenstvovaniye vyplavki sharikopodshipnikovoy stali v kislykh martenovskikh pechakh).

PERIODICAL: "Stal'" (Steel), 1957, No.6, pp.503-507 (USSR).

ABSTRACT: Results of investigations of the influence of various technological factors on the content of non-metallic inclusions in ball bearing steel produced in acid open-hearth furnaces of the Serov Works are described. The influence of the following factors was studied: A) Quality of the starting materials. It was established that the contamination of steel by sulphide inclusions is more uniform than that with oxide inclusions and depends mainly on the sulphur content in the starting materials and the fuel. This contamination increases with increasing sulphur content in steel (Fig.1) and increasing temperature of the metal during tapping (Fig.2). For the above reasons only high quality pig and the purest materials as well as low sulphur fuel oil are being used for the production of this steel. The optimum temperature of metal in runner during tapping 1525-1530 C. B). Carbon content at the end of the melting

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The development of the process of smelting ball bearing steel in acid open-hearth furnaces. (Cont.) 133-6-7/33

period. Analysis of the dependence of the content of oxide inclusions on the concentration of carbon at the end of the melting period indicated that the best results are obtained at a carbon content 1.5 - 1.7% (based on data collected from 175 heats). C) Manganese practice. On the basis of data collected from a large number of heats, it was established that the contamination of metal by inclusions decreases with increasing manganese content in metal after the end of the melting and increasing content of manganese oxide in slag. Therefore, the manganese content at the end of melting should be not lower than 0.25%, during the first hour of boiling not lower than 0.16-0.18% and during the second hour of boiling not lower than 0.22%. The manganese content required is maintained by its reduction from slag and additions of manganese ore during smelting and only in exceptional cases when the above limits cannot be maintained, by ferromanganese additions. D) Slag practice. Statistical analysis of the data collected indicated that the optimum content of ferrous oxide in slag after the end of the melting period should be within the range of 16-26%. An increase in the MnO + FeO

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The development of the process of smelting ball bearing steel in acid open-hearth furnaces. (Cont.) 133-6-7/33
and combinations of the above alloys) as well as treatment of metal in the runner with other reagents (soda, crushed electrodes, etc.). However, positive results were obtained only by deoxidation with silicocalcium (up to 1 kg/ton addition to furnace before ferrochromium and 1-1.5 kg/ton addition to ladle during tapping). As a result of the above improvements the proportion of defects found on the works as well as on consuming works decreased (Table 2). Frequency curves of the degree of oxide contamination of forged semis 90 x 90 mm from metal produced with and without the application of silicocalcium are shown in Fig. 4. A comparison of the contamination of steel with oxide and sulphide inclusions produced in electric and open hearth furnaces is shown in Figs. 5 and 6. Acid open hearth steel is less contaminated by oxide inclusions and somewhat more contaminated by sulphide inclusions than basic electric steel. I) Changes in the degree of contamination along the height of an ingot. This problem was studied on specimens from forged semis 90 x 90 mm taken from rolled strip in places corresponding to the top, middle and bottom (2% from the back end) of an ingot. The results

Card 4/5

DANIKHELKA, A., doktor, inzh.; MIKHAYLOV, O.A., kand. tekhn. nauk; GONCHARENKO, N.I.; KLIMASENKO, L.S.; OYKS, G.N., prof., doktor tekhn. nauk; SEMENENKO, P.P.; MOROZOV, A.N., prof., doktor tekhn. nauk; GLINKOV, M.A., prof., doktor tekhn. nauk; KAZANTSEV, I.G., prof., doktor tekhn. nauk; KOCHO, V.S., prof., doktor tekhn. nauk; ENEKESH, Sh., kand. tekhn. nauk; MOROZENSKIY, L.I., kand. tekhn. nauk; GURSKIY, G.V.; SPERANSKIY, V.G.; NOVIK, L.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; SHNEYEROV, Ya.A., kand. tekhn. nauk; PAPUSH, A.G., kand. tekhn. nauk; MAZOV, V.P.; SAMARIN, A.M.

Discussions. Biul. TSNIICHM no.18/19:17-35 '57. (MIRA 11:4)

1. Glavnyy staleplavil'shchik Ministerstva metallurgicheskoy promyshlennosti i rudnikov Chekhoslovatskoy respubliki (for Danikhelka).
2. Direktor Tsentral'nogo instituta informatsii chernoy metallurgii (for Mikhaylov).
3. Direktor Ukrainskogo instituta metallov (for Goncharenko).
4. Glavnyy staleplavil'shchik Kuznetskogo metallurgicheskogo kombinata (for Klimasenko).
5. Zaveduyushchiy kafedroy metallurgii stali Moskovskogo instituta stali (for Oyks).
6. Zamestitel' glavnogo inzhenera zavoda im. Serova (for Semenenko).
7. Zaveduyushchiy kafedroy metallurgii stali Chelyabinskogo politekhnicheskogo instituta (for Morozov).
8. Zaveduyushchiy kafedroy metallurgicheskikh pechey Moskovskogo instituta stali (for Glinkov).
9. Zaveduyushchiy kafedroy metallurgii stali Zhdanovskogo metallurgicheskogo instituta (for Kazantsev).
10. Zaveduyushchiy kafedroy metallurgii stali Kiyevskogo politekhnicheskogo instituta (for Koch).

(Continued on next card)

DANIKHESLKA, A.—(continued) Card 2.

11. Nachal'nik tekhnicheskogo otdela Ministerstva chernoy metal-lurgii Vengerskoy Narodnoy Respubliki (for Enskash). 12. Zame-stitel' direktora Novotul'skogo metallurgicheskogo zavoda (for Gurskiy). 13. Nachal'nik tekhnicheskogo otdela zavoda "Dnepro-spetsstal'" (for Speranskiy). 14. Institut metallurgii im. Baykova AN SSSR (for Novik). 15. Nachal'nik staleplavil'noy laboratorii Ukrainskogo instituta metallew (for Shneyerov). 16. Nachal'nik laboratorii po nepreryvnoy razlivke stali Zhdanovskogo filiala TSentral'nogo nauchno-issledovatel'skogo instituta Ministerstva stroitel'noy promyshlennosti (for Papush). 17. Nachal'nik marte-novskogo tsekha zavoda "Zaporozhstal'" (for Mamov). 18. Zemestel' direktora Instituta metallurgii im. Baykova AN SSSR, chlen-korrespondent AN SSSR (for Samarin).

(Steel--Metallurgy)

SEmenenko, P.P.
25(2); 18(3)

PHASE I BOOK EXPLOITATION SOV/1573

Kokarev, Nikolay Ivanovich, Petr Pimenovich Semenenko, Nikolay
Georgiyevich Kamkin, and Yevgeniy Stepanovich Popov

Uluchsheniye konstruktsiy i ekspluatatsii martenovskikh pechey s
osnovnymi svodami (Improvements in Design and Operation of Open-
hearth Furnaces With Basic Roofs) Sverdlovsk, Metallurgizdat,
1958. 55 p. 3,000 copies printed.

Ed.: S.D. Fedorov; Ed. of Publishing House: B.E. Berman;
Tech. Ed.: Ye.M. Zef.

PURPOSE: The book is intended for foremen in open-hearth furnace
shops and may be of use to production engineers and for students
of vuzes and tekhnikums.

COVERAGE: In this book the author examines the problems of improving
the design of open hearth furnaces with magnesiochromite basic
roof linings. It has been established that open-hearth furnaces

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Improvements in Design (Cont.)

SOV/1573

with such roof linings perform better than similar furnaces with Dinas brick roof linings. The data presented by the Metallurgical Kombinat imeni A.K. Serov indicate that the new lining is three times more durable than the old. To take full advantage of the new lining it was thought necessary to redesign and improve the efficiency of the fuel ducts and burner ports. The importance of the proper thermal regime, slag control, and the fundamentals of the proper pouring technique of quality steel are explained. The text contains numerous diagrams, charts, and illustrations. There are 8 Soviet references. No personalities are mentioned.

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Durability of furnaces with basic lining and their repair	10
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Card 2/3

SOV/137-59-5-9885

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 60 (USSR)

AUTHORS: Kokarev, N.I., Semenenko, P.P., Kapichev, A.G.

TITLE: Improved Design of Open Hearth Furnace Heads

PERIODICAL: Prom. ekon. byul. Sovnarkhoz Sverdl. ekon. adm. r-na, 1958,
Nr 7, pp 45 - 48

ABSTRACT: The author describes a 3-channel burner head of the Metallurgical Combine imeni Serov where compressed air injects preheated regenerative air into the gas caisson through two outlet channels located at the caisson level. Another improvement of the head consists in the injection of hot air through apertures which connect the gas caisson directly with the vertical air ducts. The author describes the UPI heads having double lateral injection of hot air and an injector mounted in the head vault. The injectors ensure that the caissons are supplied with $\geq 10\%$ of the total amount of air entering the furnace. The injection of air and the partial combustion of the fuel accelerate the rate of gas discharge to 55 - 65 m/sec; the flame temperature

Card 1/2

Improved Design of Open Hearth Furnace Heads

SOV/137-59-5-9885

increases by 35 - 50°C at the first aperture; the heat flows falling upon the pool increase by 5 - 8%. There are technical and economical data on the operation of open-hearth furnaces with various designs of the heads used at MMK and the Combine imeni Serov. The new heads raise the efficiency of the furnaces and reduce the specific fuel consumption. See RZhMet, 1957, Nr 3, 3665.

G.G.

Card 2/2

SOV/133-58-7-6/27

AUTHORS: Dolkart, F.Z., Semenenko, P.P., Slesarev, S.G. and
Fadeyev, I.G.

TITLE: The Use of Martenite for Repairs of the Bottom of Open-
hearth furnaces (Primeneniye martenita dlya remonta
podin martenovskikh pechey)

PERIODICAL: 'Stal', 1958, Nr 7, pp 604 - 606 (USSR)

ABSTRACT: In conjunction with the beginning of production of martenite on the "Magnezit" works, its suitability for repairs of open-hearth bottoms was tested as since previous tests in 1946-1947, operating conditions of open-hearth furnaces have changed (intensification of the smelting process). The tests were carried out on the Serov Works on 135-ton furnaces with magnesite-chromite and mixed roofs, fired with a carburised mixture of blast-furnace and brown coal-producer gas, operating the scrap ore process with 55-60% of hot pig. Usually, repairs of bottoms were done every 8 days. Chemical composition and size distribution of the martenite used for the tests - Table 1, and data on the tests - Table 2. A comparison of the chemical composition of sintered samples, taken from furnace bottoms, repaired with martenite and with a magnesite open-hearth slag

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SOV/133-58-7-6/27

. The Use of Martenite for Repairs of the Bottom of Open-hearth
furnaces

mixture - Table 3. The use of martenite decreased by 0.7% the time required for repairs due to a faster sintering of the second layer, as martenite sinters approximately twice faster than the usual mixture of magnesite with slag. The results obtained were satisfactory. For further improvement of martenite, a decrease in its silica content and an increase in magnesia content is recommended. There are 3 tables and 3 Soviet references

ASSOCIATION: Vsesoyuznyy institut ogneuporov i metallurgicheskij kombinat im. Serova (All-Union Refractory Institute and Metallurgical Combine imeni Serov)

1. Open hearth furnaces--Maintenance 3. Martensite--Applications

Card 2/2

SOV/133-59-4-5/32

AUTHORS: Kokarev, N.I., Candidate of Technical Sciences, Docent,
Kapichev, A.G., Lisiyenko, V.G., Semenenko, P.P., and
Tyulebayev, V.G., Engineers

TITLE: The Remote Investigation of Open Hearth Furnace
Jet Nozzles Injecting Air Into Gas Ports (Teplotekhnicheskiye
cheskiye ispytaniya golovok s inzhektsiyey vozdukh
v gazovyy prolet)

PERIODICAL: Stal', 1959, Nr 4, pp 306-311 (USSR)

ABSTRACT: The results of experiments with various types of jet nozzles with injection of preheated or cold air are described. The designs of jet nozzles tested are shown in Fig 1 and table 1. Hot air from regenerators was supplied through special flues lined with refractory bricks and is introduced into the port through a special tuyere mixer, as an injection medium compressed air was used. It was found that: 1) at a pressure of compressed air of about 2.5 atm and its consumption of 330 n m³/hr, about 1650 n m³/hr of preheated air is injected into the gas port. This amounts to about 10% of the total amount of air supplied to the furnace;

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2) during the period when the waste gas is passing through the gas port, the tuyere of the injector can pass from the air flue to the gas flue about 1200 m³/hr of waste gas; this amounts to 5 to 7% of the total amount of the waste gas; 3) the injection of cold air into the gas port is accompanied by an increase (in comparison with a Venturi type port) in the flame temperature at the first door of 20 to 25°C while the injection of hot air - by an increase of 40 to 50°C (Fig 2 and 3). This increases the flow of heat to the bath with cold air by 3% and with hot air up to 8% (at the first door) Fig 4. Simultaneously, the heat absorption of the bath also increases see Fig 5; 4) the injection of air into the gas port leads to a partial combustion of fuel in the port and to a decrease in the proportion of not completely burned fuel (table 2); 5) when injecting hot air the dynamic pressure of the stream of gas at the outlet from the port increases approximately 1.5 times. The increase in the dynamic pressure and the temperature of the flame leads to an increase in the flame velocity see Fig 7; 6) with increasing pressure of compressed

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air in the injector the static pressure in the gas uptake also increases (Fig 8); 7) with the injection of hot air into the gas port the duration of heats decreases and the productivity of furnaces increases (in comparison with operation with the Venturi type port or with the injection of cold air). It is considered that the experiments should be continued in order to establish the most rational placing of the injecting tuyeres to decrease dust deposition in the tuyeres to a minimum. There are 8 figures and 2 tables.

ASSOCIATION: Ural'skiy Politekhnicheskiy Institut i Metallurgicheskiy Kombinat im. A.K.Serova (Ural Polytechnical Institute and the Metallurgical Combine imeni A.K.Serov)

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AUTHORS: Filatov, V. P., Semenenko, P.P. (Engineers), Kokarev, N. I. (Candidate of Technical Sciences), and Kapichev, A. G., Aleksandrov, S. F. (Engineers)

TITLE: Smelting High-Quality Open-Hearth Steels Using Moderate and High-Sulfur-Content Mazut

PERIODICAL: Stal', 1960, Nr 1, pp 36-39 (USSR)

ABSTRACT: This is a report concerning the experience of substituting blast furnace gas in open-hearth process by the comparatively cheap high-sulfur-content mazut (Russian petroleum residue used as fuel oil) of Ural-Volga origin. It was established that the successful combustion of high-sulfur-content mazut requires conditions assisting the transition of the sulfur of the fuel into sulfurous anhydride (which is considerably more stable than H₂S, CS₂, and COS) directly at the root of the flame. This can be achieved by careful mixing of air and atomized mazut,

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by short flame combustion of the mixture (in the vicinity of the burner head), or by preliminary gasification of mazut. The conversion of open-hearth furnaces to high-sulfur-content mazut was preceded by the development of the UPI burner heads design (N. I. Kokarev, P. P. Semenenko, and A. G. Kapichev, Industrial-Economic Bulletin, Sverdlovsk Council of the National Economy, TsBTI, 1958, Nr 7). As a result of this work the 25- and 160-ton open-hearth furnaces were converted to high-sulfur-content mazut (2.3-2.8% S). They produced the 20P, 12Kh2N4A, 30KhGSA, 20Kh2N4A, E1366, E194 composition not given, and other steels with sulfur content not over 0.025-0.035% and the metal for acid processing (\leq 0.015-0.020% S) with some decrease of melt duration. Using the experience of the Magnitogorsk Combine, the 160-ton furnace was converted from gas-mazut firing to pure mazut firing without any substantial changes in the design of the lower part or in the "gas head" (see Fig. 1).

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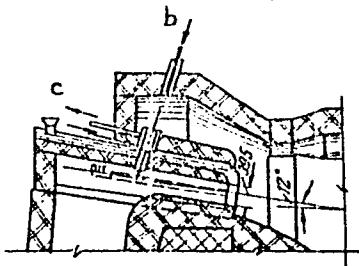
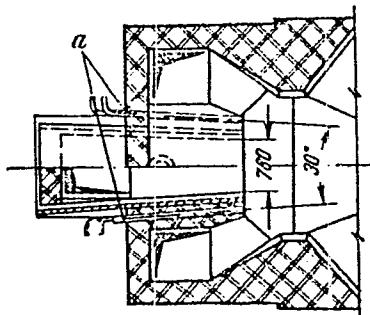


Fig. 1. The head of
160-ton open-
hearth furnace for burning
mazut without its pre-
liminary gasification.
(a) Oil burner UPI-K;
(b) compressor air feed;
(c) inlet and outlet of
water.



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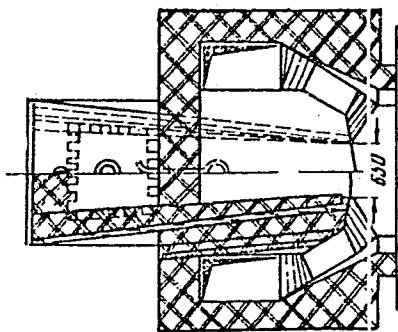
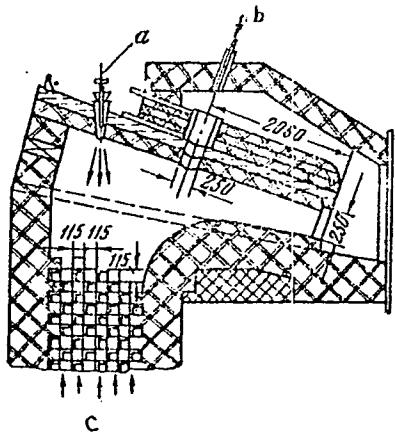
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The mazut oil burners UPI-K were installed in the sides of the former gas port. A high-pressure blower supplied primary air to the "fire head" through former gas regenerator. The secondary air was fed into the furnace through air regenerator. In the same alternate design of the furnace the existing "heads" were used for the first time for gasification of mazut in the gas uptake of the former gas port. The gasification of mazut in the head of 25-ton furnace was adapted since 1958. The air mazut atomized by the compressor (pressure not less than 1.5 atm gage) was delivered by the vertical oil burners (see Fig. 2) to meet with the 1,100° C primary air coming from the former gas regenerator. In the zone where the flows of atomized mazut and hot air meet, an intense combustion takes place, accompanied by the sharp raise of temperature (up to 1,550-1,750° C), evaporating and gasifying mazut.

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Fig. 2. A head of a 25-ton open-hearth furnace for
firing with gasified mazut: (a) oil burner UPI-K;
(b) compressed air; (c) primary air (preheated).

The possibility of gasification of mazut permitted
the utilization of the high-sulfur-content mazut for
smelting of high-quality steels with moderate sulfur
content and the accelerated sulfur removal during
finishing (see Fig. 3).

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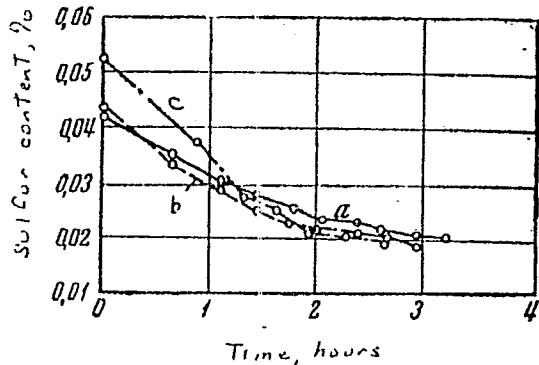


Fig. 3. Curves of desulfurization of metal (charge pig for acid processing) in the course of melting in the 160-ton furnace fired by: (a) mixture of blast furnace gas and mazut (0.8-2.2% S); (b) mazut without gasification (0.9-2.8% S); (c) gasified mazut (0.9-2.6% S).

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The authors arrived at the following conclusions:

- (1) The developed method of firing the open-hearth furnaces by moderate and high-sulfur content mazut permits the production of high-quality steels with sulfur content of 0.020 up to 0.035% and the metal for acid processing (charge pig with 0.015-0.020% S).
- (2) To decrease the transition of sulfur of the fuel into the slag and metal, a high completeness and intensity of combustion should be attained. This provides for transition of sulfur compounds into SO_2 before the contact of gas with the surface of slag and metal.
- (3) The adapted gasification of mazut can be achieved in former gas uptakes of UPI heads equipped by special injecting devices for increasing the velocity of mazut gas discharge and for the required distribution of the products of combustion over the former gas and air regenerators.
- (4) The efficiency of combustion of liquid high-sulfur-content mazut directly in the working space

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